Photo: S Curry (Aug 2003)

Open access – compliance, freedom and responsibility

Stephen Curry | Professor of Structural Biology | Imperial College London | Pasteur4OA Meeting | 17 May 2016

Open access – a good fit to academic culture but there are tensions

technological change

cultural change (societal, **academic**)

political forces (*i.e.* economics, but also govt transparency…)

http://www.fameimages.com/tim-berners-lee-olympics

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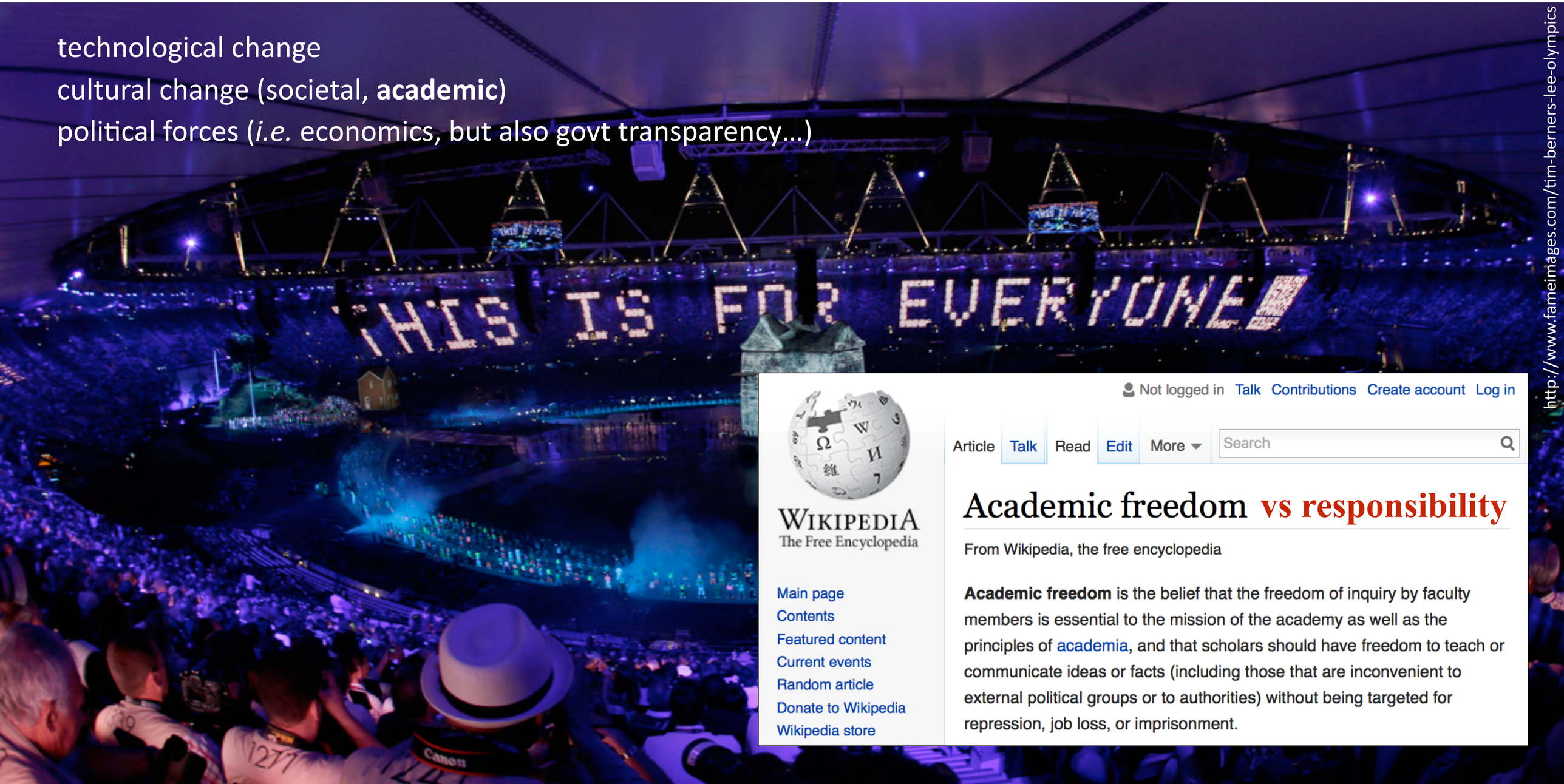

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Academic freedom vs responsibility

From Wikipedia, the free encyclopedia

Academic freedom is the belief that the freedom of inquiry by faculty members is essential to the mission of the academy as well as the principles of academia, and that scholars should have freedom to teach or communicate ideas or facts (including those that are inconvenient to external political groups or to authorities) without being targeted for repression, job loss, or imprisonment.

Researchers are focused on research...

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Researchers are focused on research…

the scholarly kitchen

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WHAT'S HOT AND COOKING IN SCHOLARLY PUBLISHING

AUTHORITY, AUTHORS, BUSINESS MODELS, COMMERCE, CONTROVERSIAL TOPICS, COPYRIGHT, ECONOMICS, ETHICS, INNOVATION, LIBRARIES, OPEN ACCESS

Scholarly-Communication Reform: Why Is it So Hard to Talk About, and Where are the Authors?

POSTED BY RICK ANDERSON · MAY 16, 2016 · 11 COMMENTS

FILED UNDER AUTHORS, LIBRARIES, OPEN ACCESS, PUBLISHERS, REFORM, SCHOLARLY PUBLISHING, SCHOLARSHIP

Readers of the Scholarly Kitchen (or of any number of professional listservs, magazines, journals, etc.) may have noticed that questions about scholarly-communication reform tend to be, shall we say, vexed and controversial. Having participated in these conversations for 20 or so years now, and having recently gotten home from a conference that dealt specifically with such questions, I've been thinking a lot about why feelings run so high when we talk about them. I think some of the reasons would include the following:

Source: pickthebrain.com

1. **They are tied up in troublesome questions of right and wrong.** When Person A speaks of the public's right to have access to scholarly products that were created on the public's dime, he's invoking a moral principle: that charging for access to such products

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Researchers are focused on research…

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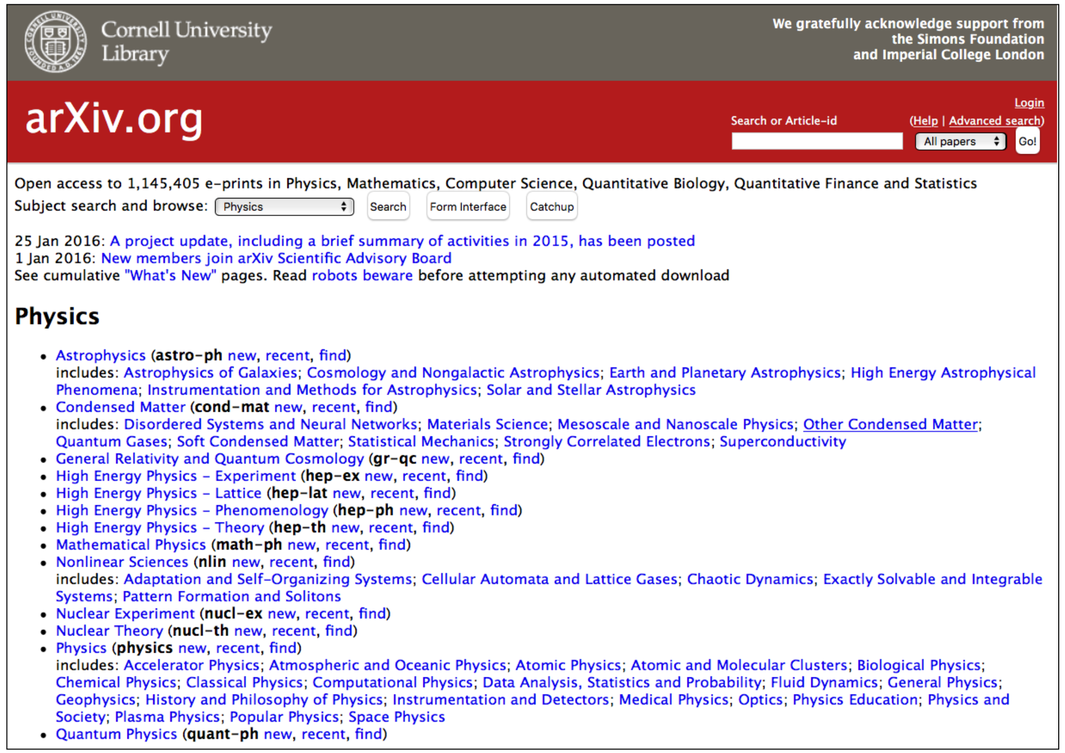
WHAT RESEARCHERS THINK

https://www.knaw.nl/en/news/publications/opening-the-book-on-open-access

Researchers are sympathetic but compliance and costs are issues



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1 Jan 2016: New members join arXiv Scientific Advisory Board
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Open access scientific publishing

Wellcome Trust will penalise scientists who don't embrace open access

Wealthy medical charity says it will withhold researchers' final grant payments if they fail to make their results open access

Only 55% of the research papers funded by the Wellcome Trust are currently open access. Photograph: Alamy

Alok Jha, science correspondent
Thursday 28 June 2012 07.00 BST

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The Wellcome Trust plans to withhold a portion of grant money from scientists who do not make the results of their work freely available to the public, in a move that will embolden supporters of the growing open access movement in science. In addition, any research papers that are not freely available will not be counted as part of a scientist's track record when Wellcome assesses any future applications for research funding.

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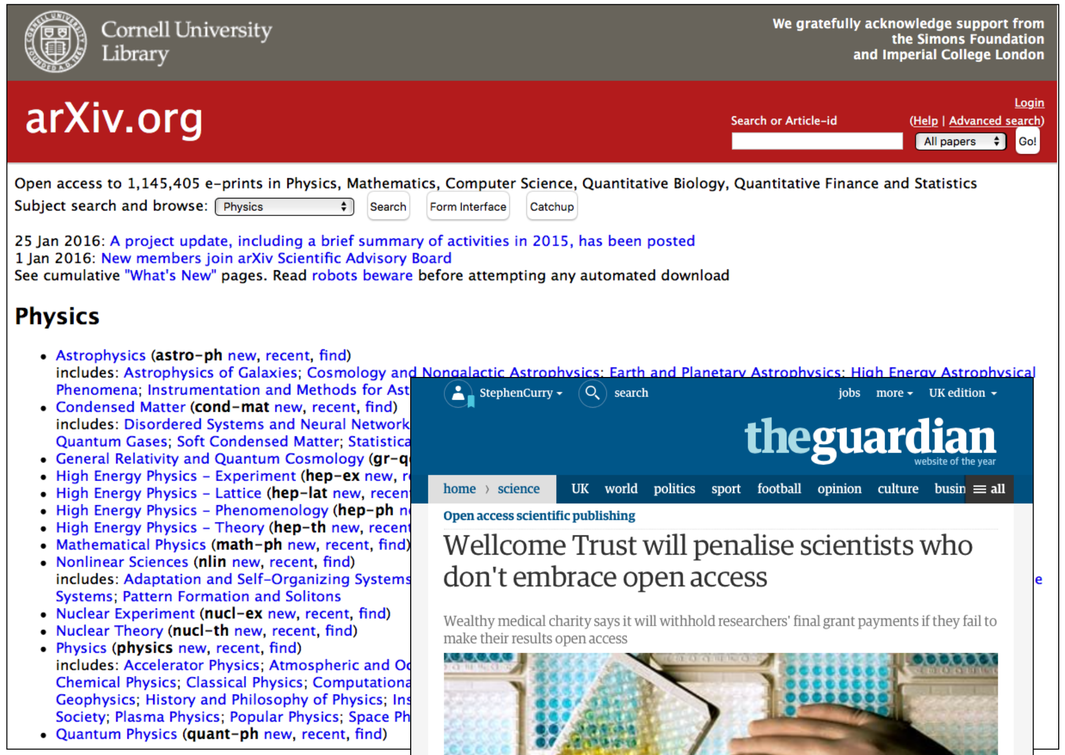
Open access publishing

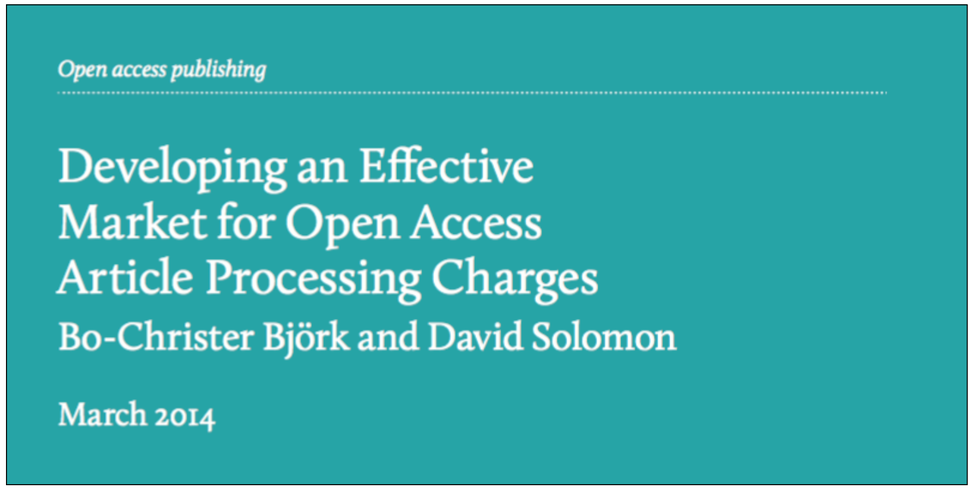
Developing an Effective Market for Open Access Article Processing Charges

Bo-Christer Björk and David Solomon

March 2014

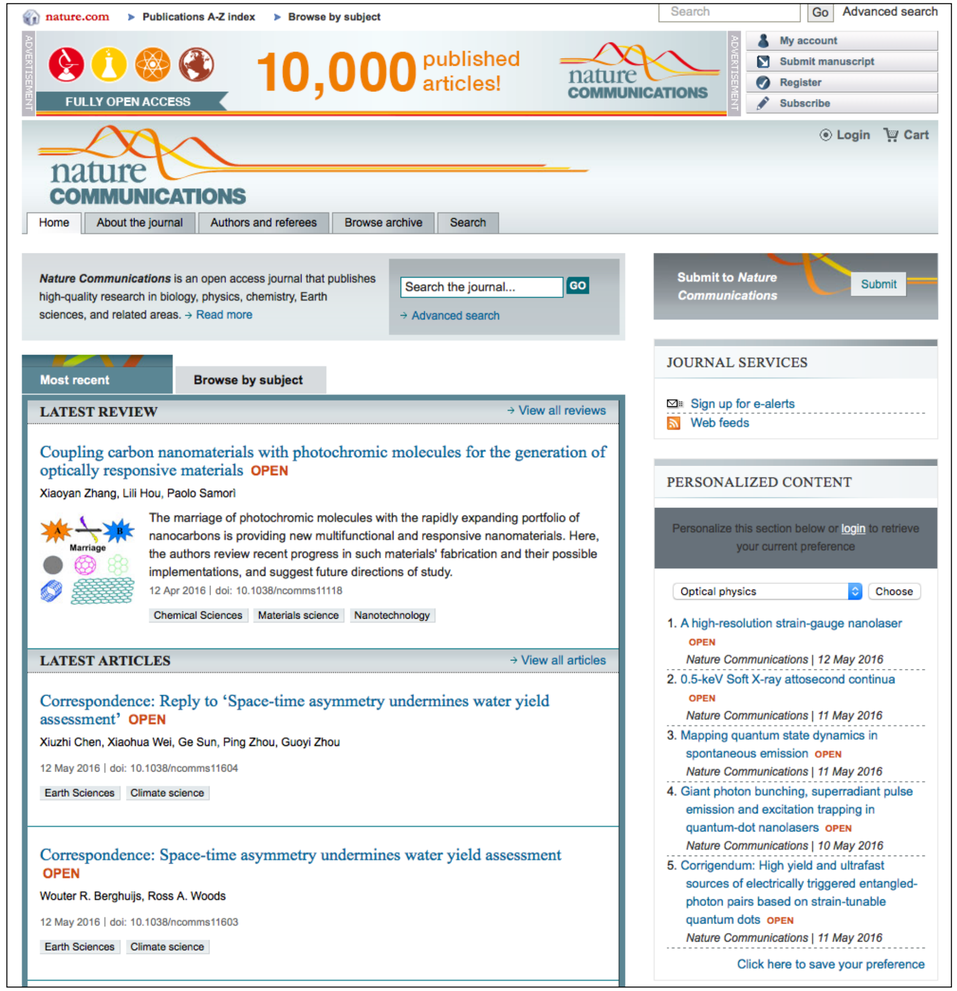
Researchers are sympathetic but compliance and costs are issues





"There has been some concern raised by research funders about the quality of service received from publishers in return for Gold OA charges… These problems are particularly prevalent amongst publishers offering a hybrid OA option."

Can we expose academics to cost-benefit analyses?



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Cell Press - $5000

Science Advances (w. CC-BY) - $4600

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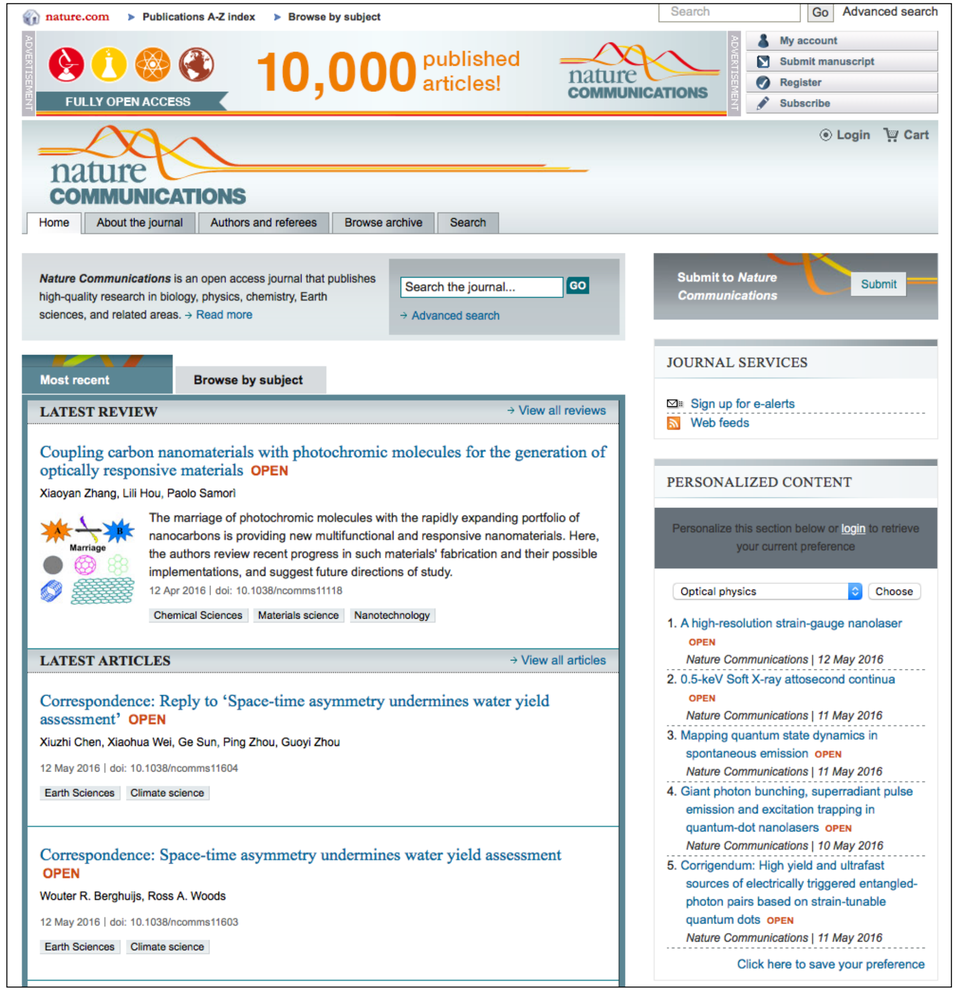

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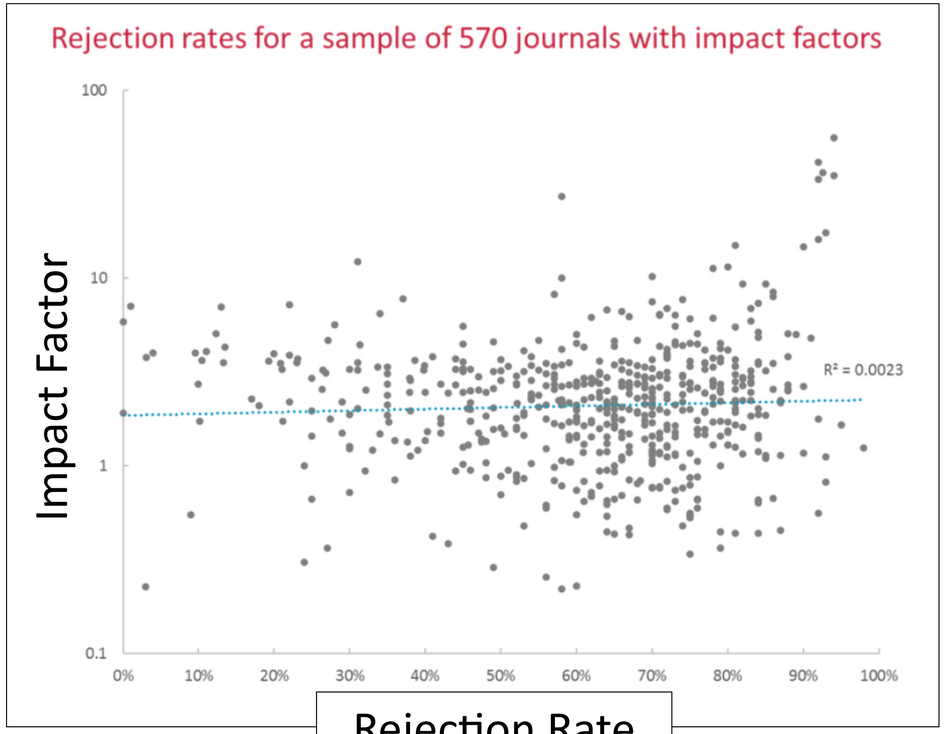

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Do lower APCs threaten the quality of the published paper?

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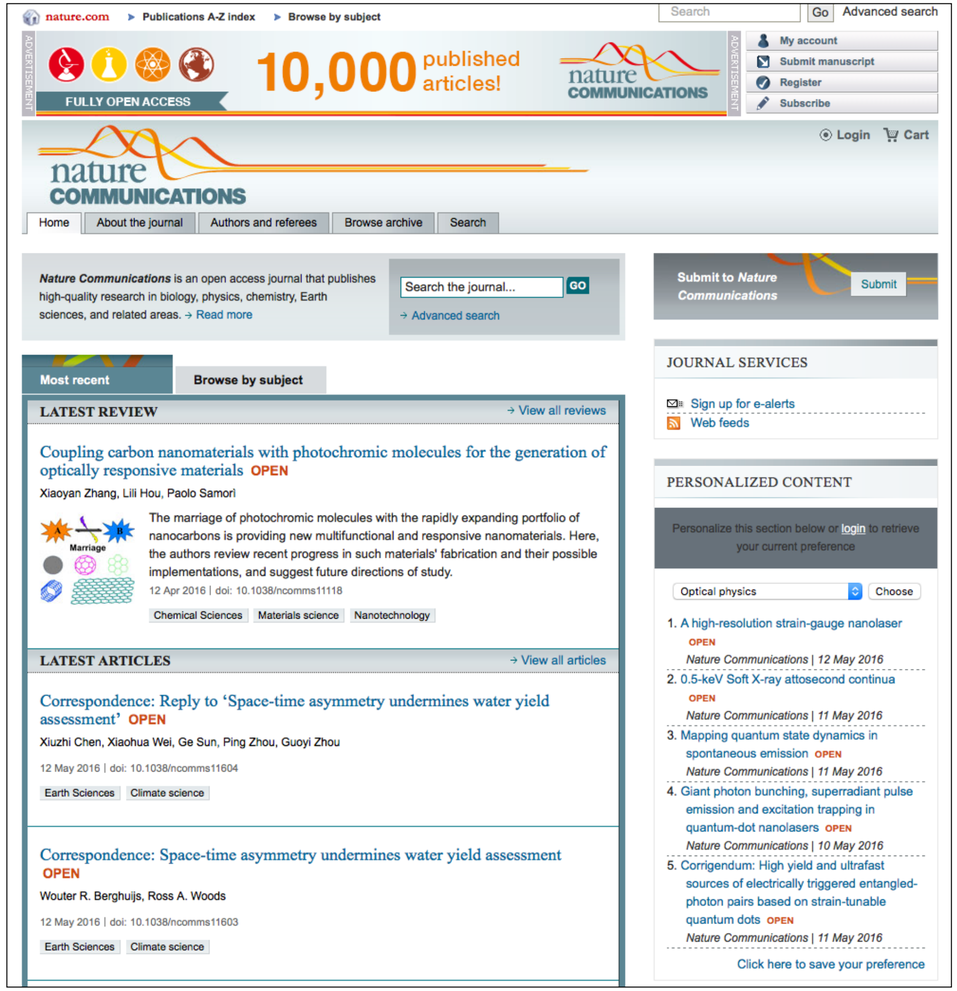

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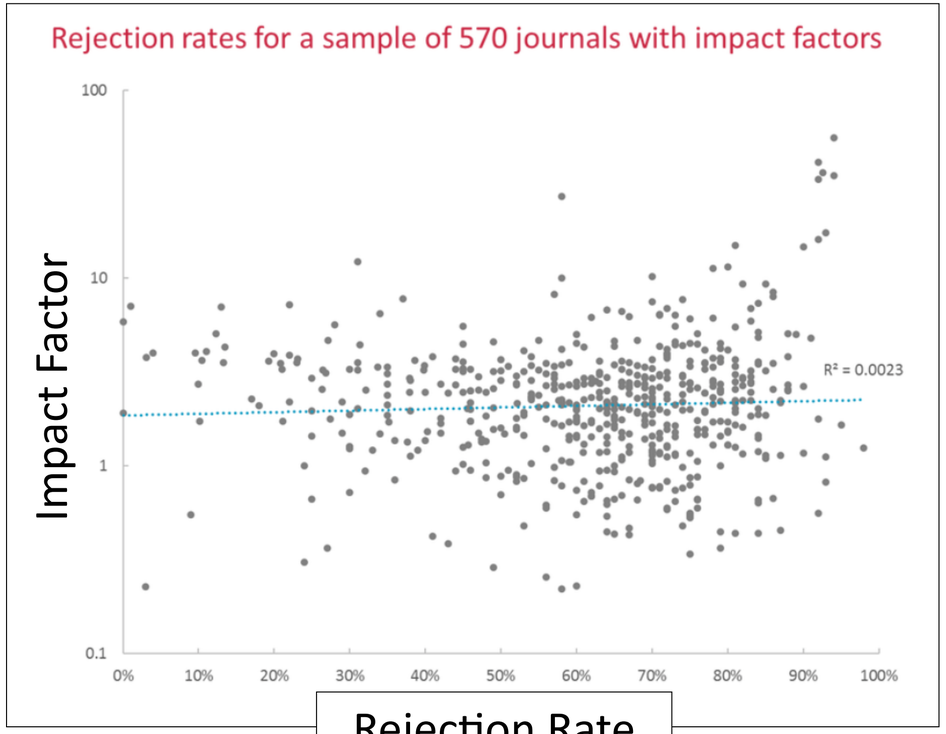

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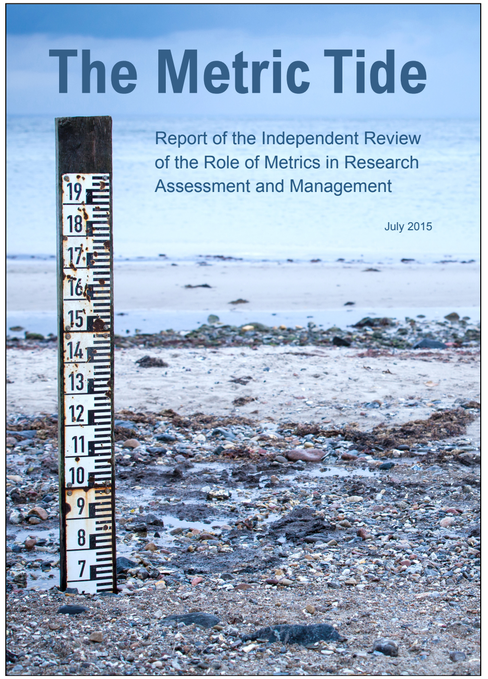

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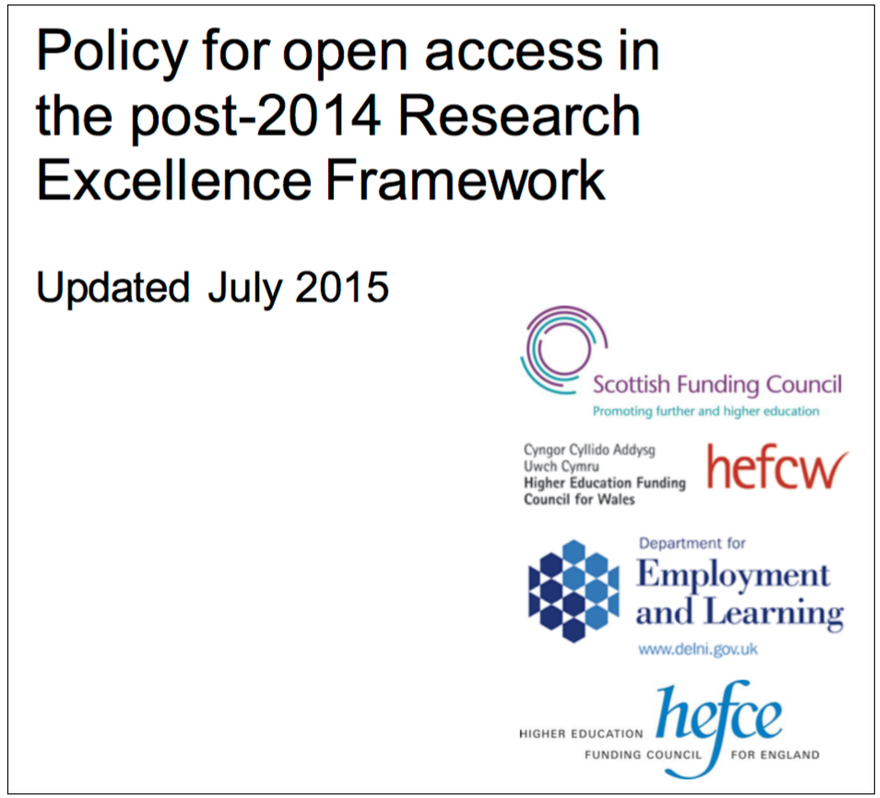
Can openness (*e.g.* citation distributions) change behaviour?

HEFCE: linking open access to the REF was genius, but…



From April 2016: To be eligible for submission to the post-2014 REF, authors' outputs **must** have been deposited in an institutional or subject repository."

HEFCE: linking open access to the REF was genius, but…

Policy for open access in the post-2014 Research Excellence Framework

Updated July 2015

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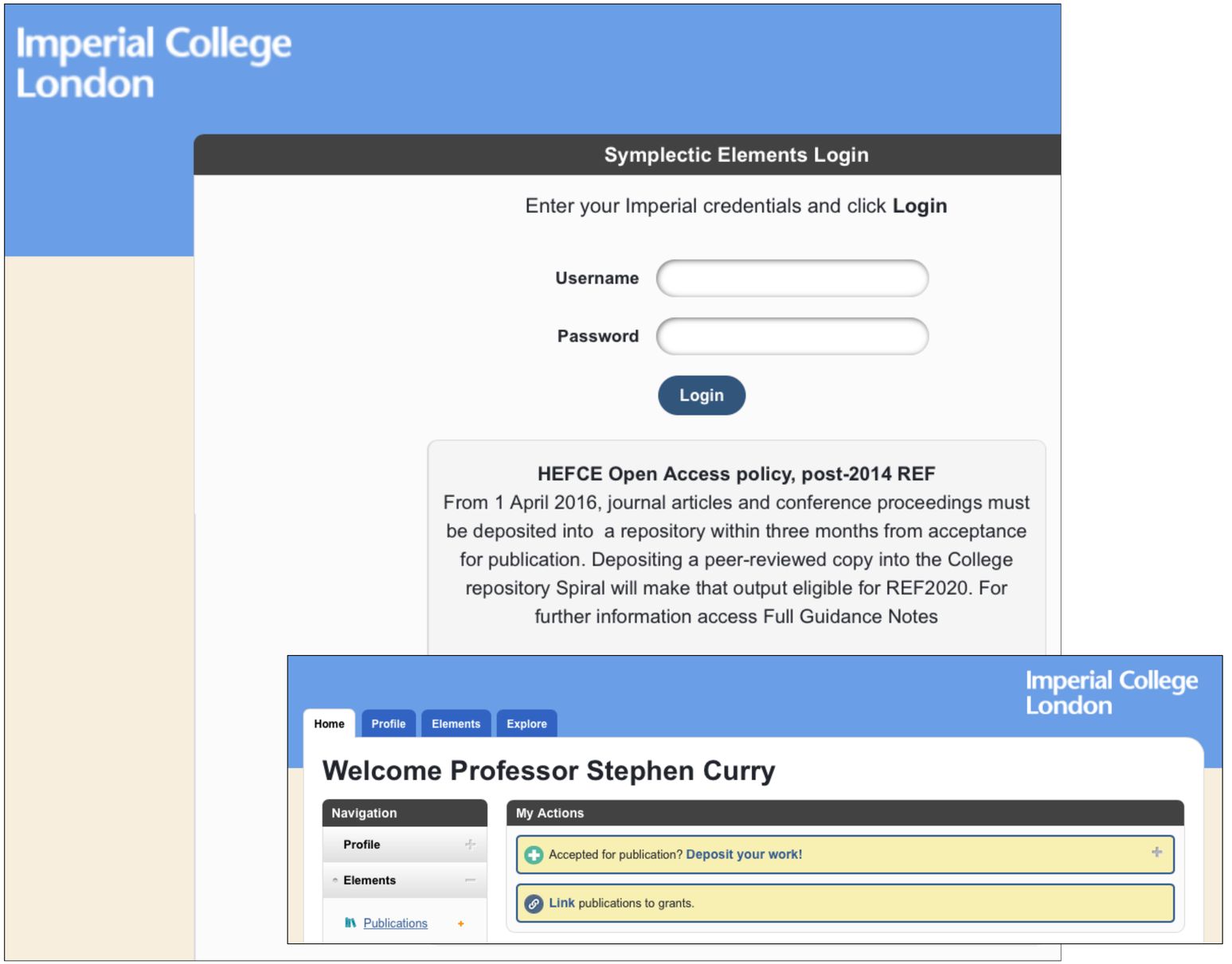

Poynder's critique of HEFCE open access policy – and rebuttal

"the HEFCE policy is problematic — because the REF process has little or nothing to do with rewards, but a great deal to do with **sanctions and punishment**. As such, the HEFCE policy could turn researchers away from open access rather than towards it.

…the principles inherent to the OA movement are those of sharing and egalitarianism, not elitism and sanctions…"

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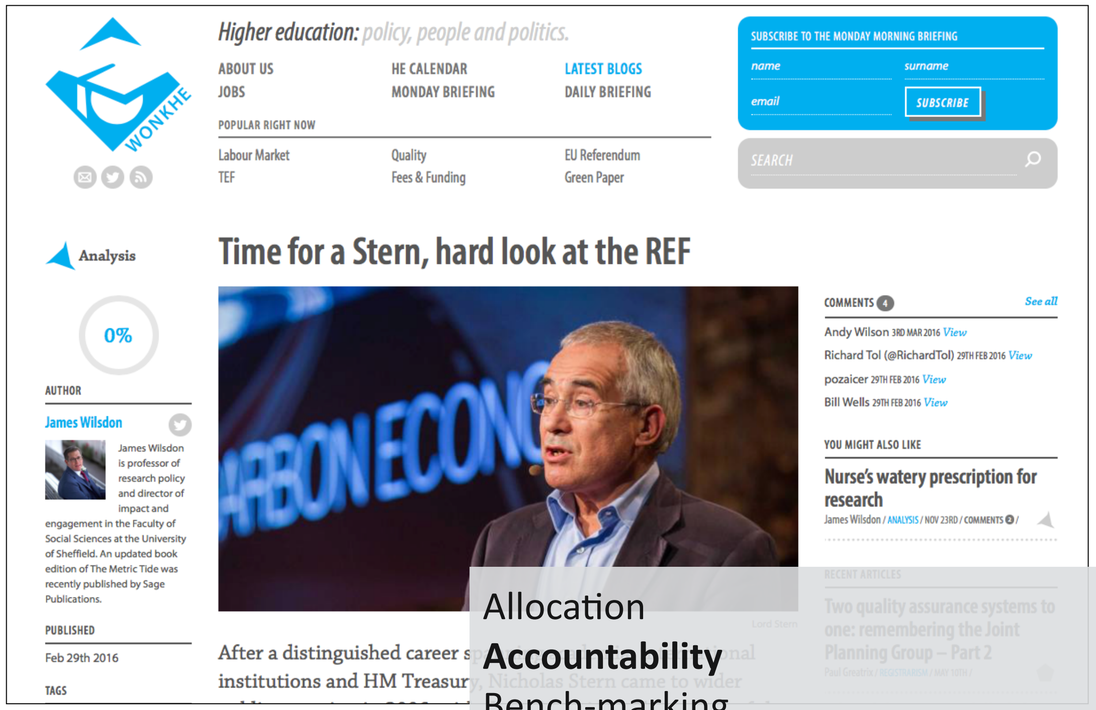

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Allocation
Accountability
Bench-marking
Influencing research culture
HEI performance management norms

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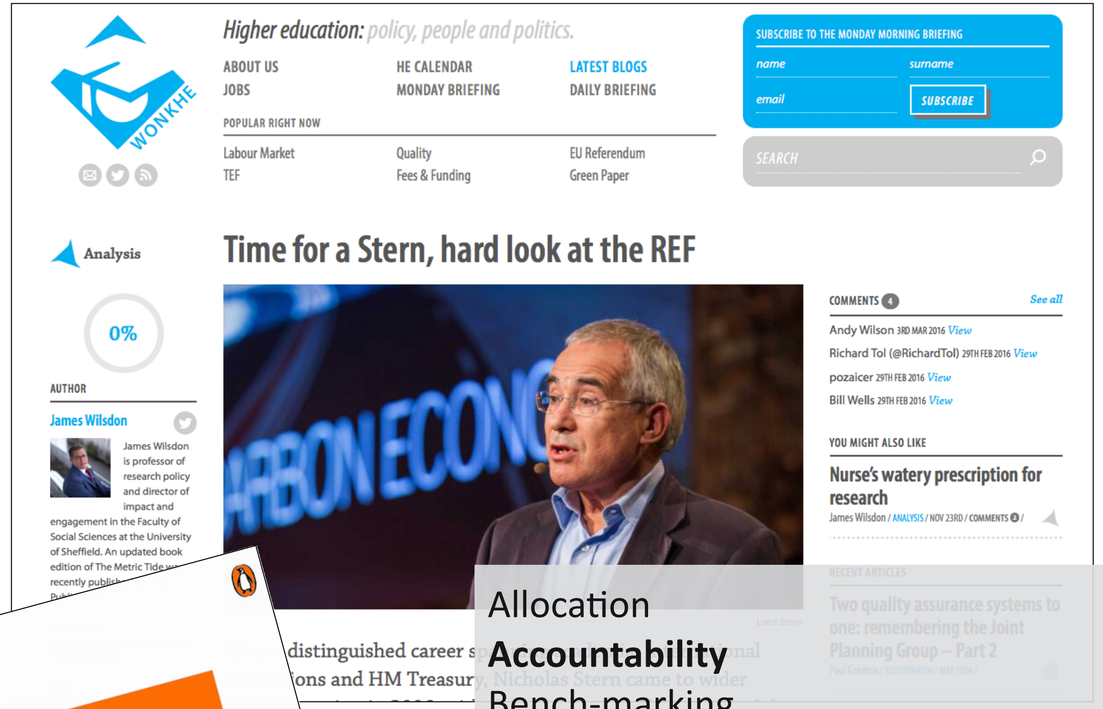

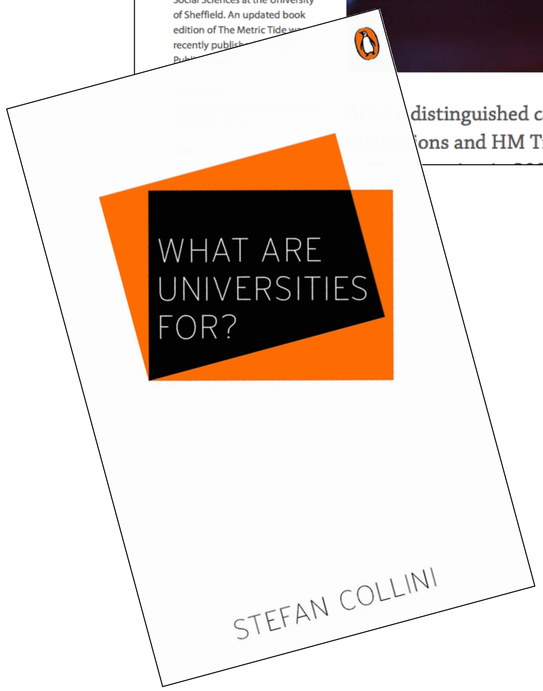

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Don’t forget the carrots – benefits of open access

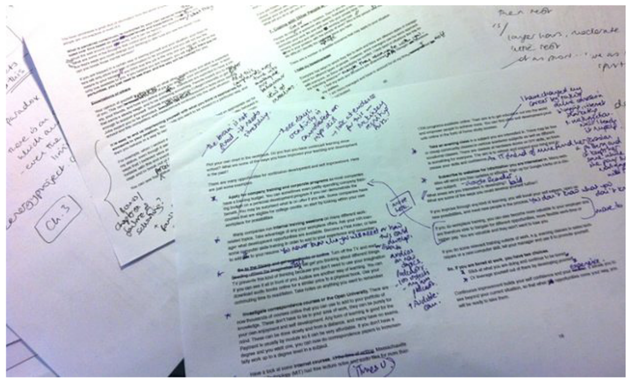
Peer review and scientific publishing
Occam's corner

Peer review, preprints and the speed of science

Peer review is often claimed to be the guarantor of the trustworthiness of scientific papers, but it is a troubled process. Preprints offer a way out

Stephen Curry
@Stephen_Curry

Monday 7 September 2015 11.00 BST



Subediting skills for writers Photograph: Joanna Penn/Flickr

A few weeks ago my collaborators and I submitted our latest paper to a scientific journal. We have been investigating how noroviruses subvert the molecular machinery of infected cells and have some interesting results. If it passes peer review, our paper could be published in three or four months’ time. If it’s rejected, we may have to re-work the manuscript before trying our luck with another journal. That will delay publication even further - it’s not unheard of for papers to take a year or more to get out of the lab and into the world, even in the digital age.

Access
Pre-prints (for speed)
Open peer review
Largest possible audience (sharing & scrutiny)

Don’t forget the carrots – benefits of open access

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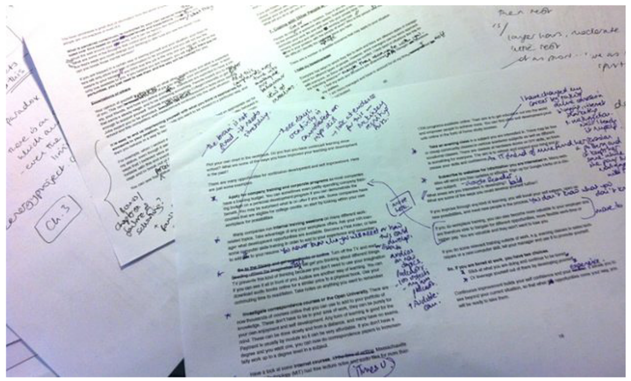

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Science
Occam's corner

Zika virus initiative reveals deeper malady in scientific publishing

Stephen Curry

Moves to speed up the release of Zika virus research in response to the public health crisis highlight a systemic failure in scientific publishing. Help could be at hand at the ASAPbio meeting today in the USA

Contact author
@Stephen_Curry

Tuesday 16 February 2016 11.54 GMT

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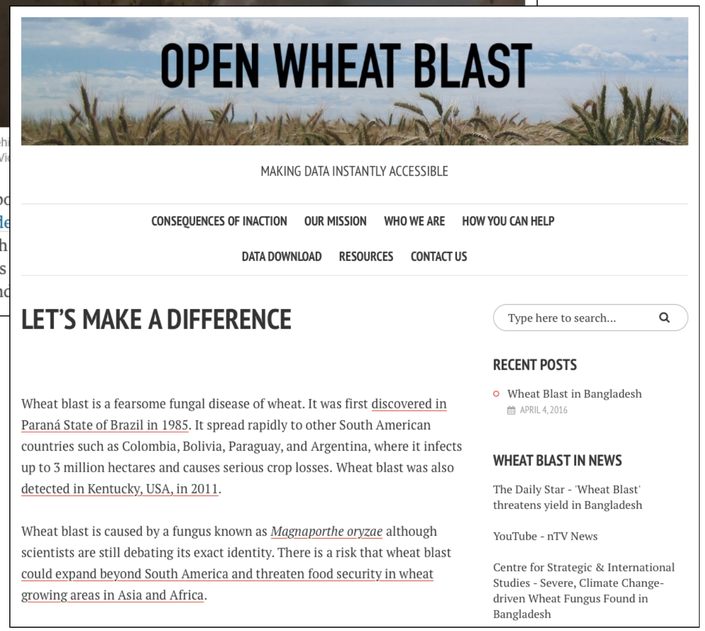

Data sharing (sharing & scrutiny)
Better for addressing societal problems

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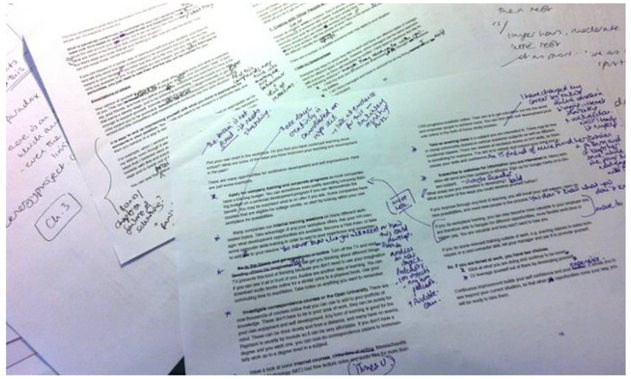

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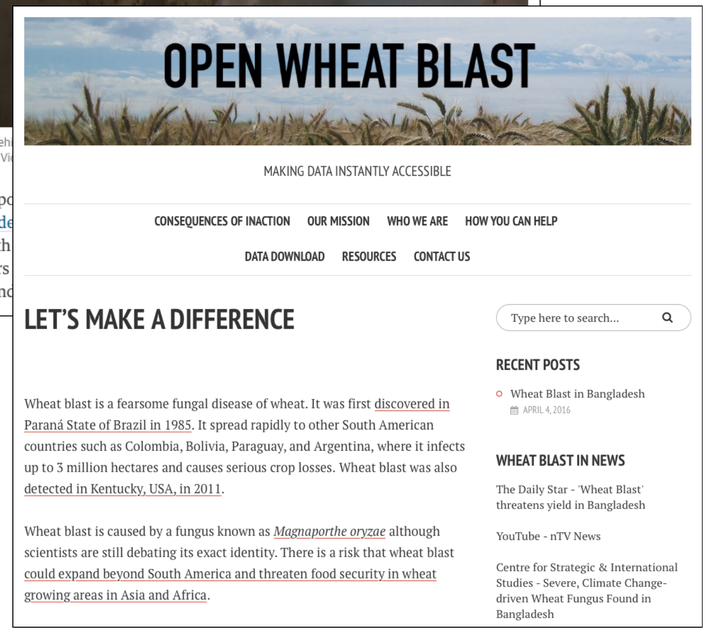

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Better for addressing societal problems

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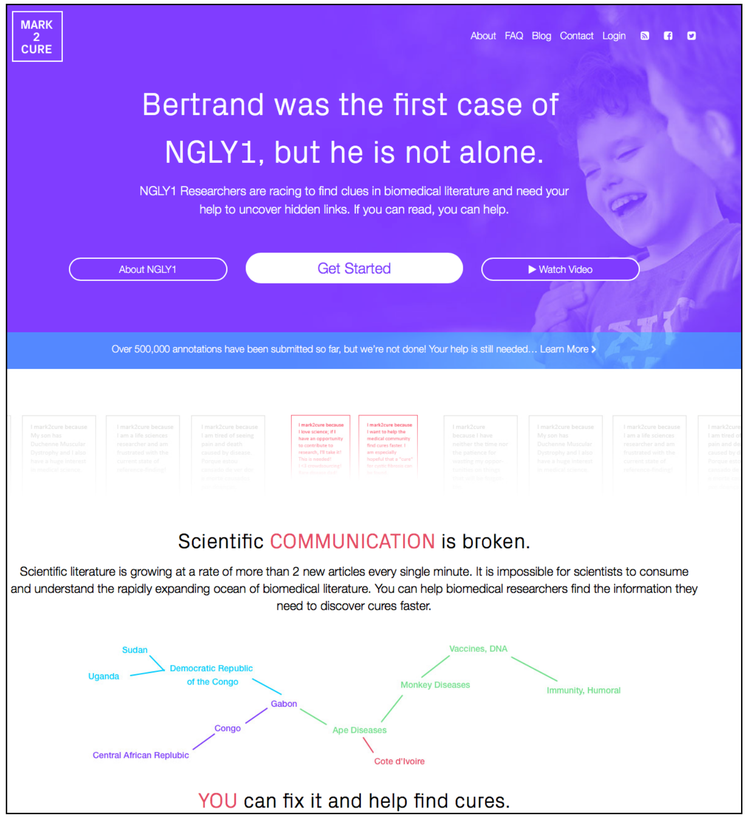

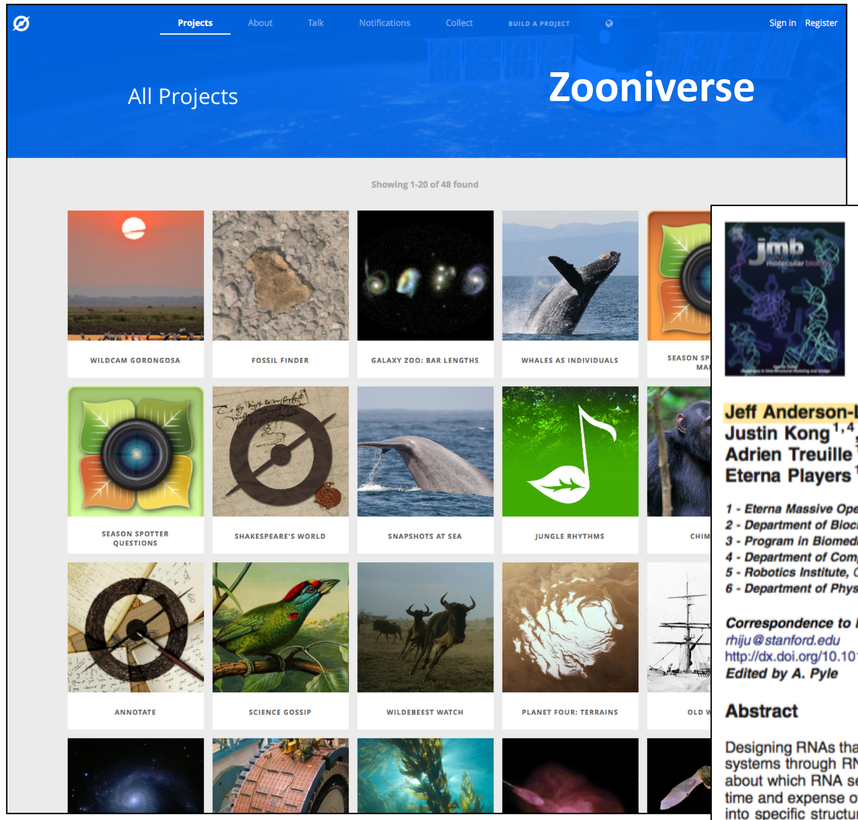

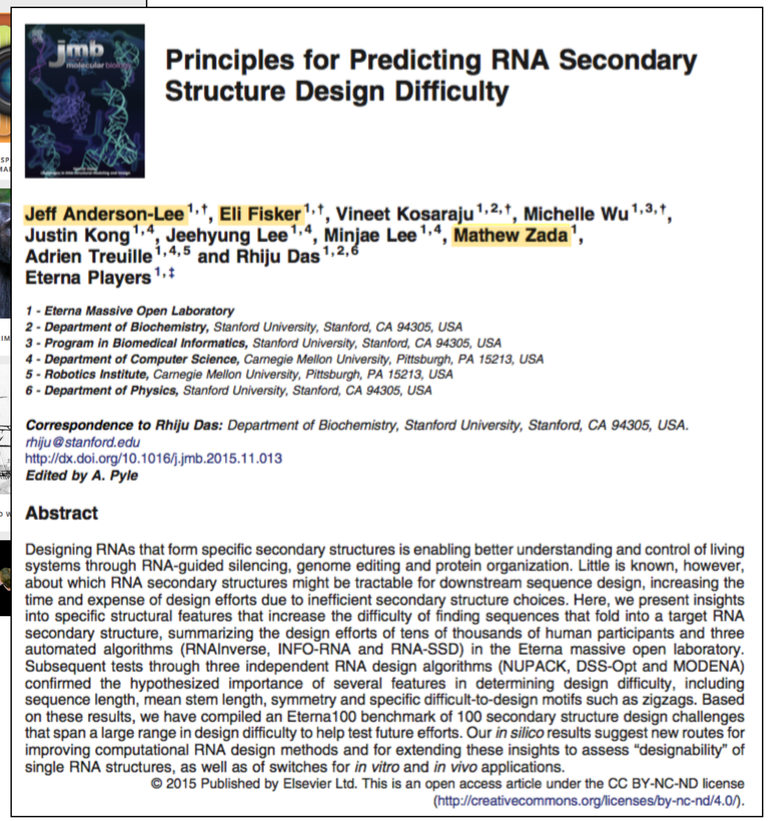

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Principles for Predicting RNA Secondary Structure Design Difficulty

Jeff Anderson-Lee[1,†], **Eli Fisker**[1,†], **Vineet Kosaraju**[1,2,†], **Michelle Wu**[1,3,†], **Justin Kong**[1,4], **Jeehyung Lee**[1,4], **Minjae Lee**[1,4], **Mathew Zada**[1], **Adrien Treuille**[1,4,5] and **Rhiju Das**[1,2,6]
Eterna Players[1,‡]

1 - Eterna Massive Open Laboratory
2 - Department of Biochemistry, Stanford University, Stanford, CA 94305, USA
3 - Program in Biomedical Informatics, Stanford University, Stanford, CA 94305, USA
4 - Department of Computer Science, Carnegie Mellon University, Pittsburgh, PA 15213, USA
5 - Robotics Institute, Carnegie Mellon University, Pittsburgh, PA 15213, USA
6 - Department of Physics, Stanford University, Stanford, CA 94305, USA

Correspondence to Rhiju Das: *Department of Biochemistry, Stanford University, Stanford, CA 94305, USA.*
rhiju@stanford.edu
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Abstract

Designing RNAs that form specific secondary structures is enabling better understanding and control of living systems through RNA-guided silencing, genome editing and protein organization. Little is known, however, about which RNA secondary structures might be tractable for downstream sequence design, increasing the time and expense of design efforts due to inefficient secondary structure choices. Here, we present insights into specific structural features that increase the difficulty of finding sequences that fold into a target RNA secondary structure, summarizing the design efforts of tens of thousands of human participants and three automated algorithms (RNAInverse, INFO-RNA and RNA-SSD) in the Eterna massive open laboratory. Subsequent tests through three independent RNA design algorithms (NUPACK, DSS-Opt and MODENA) confirmed the hypothesized importance of several features in determining design difficulty, including sequence length, mean stem length, symmetry and specific difficult-to-design motifs such as zigzags. Based on these results, we have compiled an Eterna100 benchmark of 100 secondary structure design challenges that span a large range in design difficulty to help test future efforts. Our *in silico* results suggest new routes for improving computational RNA design methods and for extending these insights to assess “designability” of single RNA structures, as well as of switches for *in vitro* and *in vivo* applications.

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